

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

[1] (Original) A spring steel wire having a tempered martensitic structure brought about by quenching-tempering, the spring steel wire comprising:

a 40 % or higher reduction of area; and

a 1,000 Mpa or higher shear yield stress after subjected to heat treatment for at least 2 hours at a temperature ranging from 420°C to 480°C.

[2] (Original) The spring steel wire according to claim 1 consisting of, based on mass %, C: 0.50-0.75%, Si: 1.80-2.70%, Mn: 0.1-0.7%, Cr: 0.70-1.50%, Co: 0.02-1.0%, and remnants consisting of Fe and impurities.

[3] (Original) The spring steel wire according to claim 1 consisting of, based on mass %, C: 0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%, and remnants consisting of Fe and impurities.

[4] (Original) The spring steel wire according to claim 1 consisting of, based on mass %;
C: 0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%;
at least one element of Ni: 0.1-1.0% and Co: 0.02-1.00%; and
remnants consisting of Fe and impurities.

[5] (Original) The spring steel wire according to claim 1 consisting of, based on mass %;
C: 0.50-0.75%, Si: 1.80-2.70%, Mn: 0.1-0.7%, Cr: 0.70-1.50%, Co: 0.02-1.00%;
at least one element selected from the group of 5 elements consisting of V: 0.05-0.50%, Mo:
0.05-0.50%, W: 0.05-0.15%, Nb: 0.05-0.15% and Ti: 0.01-0.20; and
remnants consisting of Fe and impurities.

[6] (Original) The spring steel wire according to claim 1 consisting of, based on mass %;
C: 0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%;
at least one element selected from the group of 5 elements consisting of V: 0.05-0.50%, Mo:
0.05-0.50%, W: 0.05-0.15%, Nb: 0.05-0.15% and Ti: 0.01-0.20%; and
remnants consisting of Fe and impurities.

[7] (Original) The spring steel wire according to claim 1 consisting of, based on mass %, C:
0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%, at least one element of Ni: 0.1-
1.0% and Co: 0.02-1.00%, at least one element selected from the group of 5 elements consisting
of V: 0.05-0.50%, Mo: 0.05-0.50%, W: 0.05-0.15%, Nb: 0.05-0.15% and Ti: 0.01-0.20%, and
remnants consisting of Fe and impurities.

[8] (Currently Amended) The spring steel wire according to ~~any one of the claims 1 through 7~~
claim 1 comprising austenite grains (prior austenite grains) which have an average grain size in
the range of 3.0-7.0 μm .

[9] (Currently Amended) A spring manufactured from the spring steel wire according to ~~any
one of the claims 1 through 7~~ claim 1.

[10] (Original) A spring manufactured from the spring steel wire according to claim 8.

[11] (Original) A method of manufacturing a spring steel wire, comprising the steps of:
patenting a steel consisting of chemical compositions given below;
drawing the thus patented steel into a steel wire; and
subjecting the resultant steel wire to quenching-tempering;
wherein said patenting process comprises:

an austenization step in which the steel is heated at 900-1,050°C for 60 to 180 seconds;
and
an isothermal transformation step in which the thus austenized steel is heated at 600-
750°C for 20 to 100 seconds;

Chemical compositions (based on mass %):

C: 0.50-0.75%, Si: 1.80-2.70%, Mn: 0.1-0.7%, Cr: 0.70-1.50%, Co: 0.02-1.00%, and remnants consisting of Fe and impurities.

[12] (Original) A method of manufacturing a spring steel wire, comprising the steps of:

patenting a steel consisting of chemical compositions given below;

drawing the thus patented steel into a steel wire; and

subjecting the resultant steel wire to quenching-tempering;

wherein said patenting process comprises:

an austenization step in which the steel is heated at 900-1,050°C for 60 to 180 seconds;
and

an isothermal transformation step in which the thus austenized steel is heated at 600-750°C for 20 to 100 seconds;

Chemical compositions (based on mass %):

C: 0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%, and remnants consisting of Fe and impurities.

[13] (Original) A method of manufacturing a spring steel wire, comprising the steps of:

patenting a steel consisting of chemical compositions given below;

drawing the thus patented steel into a steel wire; and

subjecting the resultant steel wire to quenching-tempering;

wherein said patenting process comprises:

an austenization step in which the steel is heated at 900-1,050°C for 60 to 180 seconds;
and

an isothermal transformation step in which the thus austenized steel is heated at 600-750°C for 20 to 100 seconds;

Chemical compositions (based on mass %):

C: 0.50-0.75%, Si: 1.80-2.70%, Mn: over 0.7-1.5%, Cr: 0.70-1.50%, at least one element of Ni: 0.1-1.0% and Co: 0.02-1.00%, and remnants consisting of Fe and impurities.